

WHAT IS CLAIMED:

1. An elastic conductive resin composition, comprising an elastic resin and an acicular conductive filler, said filler
5 comprising a surface layer of gold, silver, nickel, or copper.

2. The elastic conductive resin composition according to claim 1, wherein the acicular conductive filler comprises a whisker as a core material.

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3. The elastic conductive resin composition according to claim 2, wherein the acicular conductive filler comprises a high polymer whisker as a core material.

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4. The elastic conductive resin composition according to claim 1, wherein the resin is a silicone resin having an ultraviolet-curing property and a humidity-curing property.

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5. An electronic device, comprising:
an electronic part comprising at least one first electrode;
a substrate comprising at least one second electrode; and
at least one bump formed on the at least one first electrode,
said bump formed from the elastic conductive resin composition of claim 1,

wherein the at least one first electrode and the at least one second electrode are electrically connected to each other by physical contact of the at least one bump with the at least one second electrode.

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6. The electronic device according to claim 5, wherein the at least one bump has a shape that becomes gradually thin toward a tip portion of the at least one bump, and an aspect ratio of the at least one bump is in a range of about 0.1 to about 1.0.

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7. The electronic device according to claim 5, wherein the resin is a silicone resin having an ultraviolet-curing property and a humidity-curing property.

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8. An electronic device, comprising:

an electronic part comprising at least one first electrode;

a substrate comprising at least one second electrode; and

at least one bump formed on the at least one second electrode, said bump formed from the elastic conductive resin composition of claim 1,

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wherein the at least one first electrode and the at least one second electrode are electrically connected to each other by physical contact of the at least one bump with the at least one first electrode.



9. The electronic device according to claim 8, wherein the at least one bump has a shape that becomes gradually thin toward a tip portion of the at least one bump, and an aspect ratio of the at least one bump is in a range of about 0.1 to about 1.0.

10. The electronic device according to claim 8, wherein the resin is a silicone resin having an ultraviolet-curing property and a humidity-curing property.

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11. An electronic device, comprising:

an electronic part comprising at least one first electrode;

a substrate comprising at least one second electrode;

at least one bump formed on the at least one first electrode

15 and formed from an elastic conductive composition comprising an elastic resin and a tetrapod-shaped zinc oxide filler comprising a surface layer of gold, silver, nickel, or copper,

wherein the at least one first electrode and the at least one second electrode are electrically connected to each other by physical contact of the at least one bump with the at least one second electrode.

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12. The electronic device according to claim 11, wherein the at least one bump has a shape that becomes gradually thin toward a

tip portion of the at least one bump, and an aspect ratio of the at least one bump is in a range of about 0.1 to about 1.0.

13. The electronic device according to claim 11, wherein the
5 resin is a silicone resin having an ultraviolet-curing property and a humidity-curing property.

14. An electronic device, comprising:
an electronic part including at least one first electrode;
10 a substrate including at least one second electrode;
at least one bump formed on the at least one second electrode
and formed from the elastic conductive resin composition of claim
1 wherein the filler is a tetrapod-shaped zinc oxide filler
comprising a surface layer of gold, silver, nickel, or copper,
15 wherein the at least one first electrode and the at least one
second electrode are electrically connected to each other by
physical contact of the at least one bump with the at least one
first electrode.

20 15. The electronic device according to claim 14, wherein the
at least one bump has a shape that becomes gradually thin toward a
tip portion of the at least one bump, and an aspect ratio of the
at least one bump is in a range of about 0.1 to about 1.0.

16. The electronic device according to claim 14, wherein the resin is a silicone resin having an ultraviolet-curing property and a humidity-curing property.

5 17. A connection part, comprising:

an elastic conductive element formed from the elastic conductive resin composition of claim 1, and

a metallic foil provided onto the elastic conductive element.

10 18. An electronic part comprising:

at least one electrode; and

at least one bump formed on the at least one electrode, said bump formed from the elastic conductive resin composition of claim 1.

15 19. A substrate comprising:

at least one electrode; and

at least one bump formed on the at least one electrode from the elastic conductive resin composition of claim 1.

20 20. A method of forming a bump on an electrode, comprising:

screen-printing a conductive paste comprising a heat-curing silicone resin, a diluent, and an acicular conductive filler on said electrode;

heat-curing the conductive paste at a temperature lower than
a complete curing temperature while evaporating the diluent; and

subsequently further heat-curing the conductive paste until a
temperature of the conductive paste reaches the complete curing
5 temperature.

21. A method of forming a connection part comprising an
elastic conductive element formed from an elastic conductive resin
composition comprising an elastic resin and an acicular conductive
10 filler, and a metallic foil provided onto the elastic conductive
element, comprising:

- coating a metallic foil with the elastic conductive resin
- composition at a predetermined thickness;
- curing the elastic conductive resin composition; and
- 15 cutting the cured elastic conductive resin composition and
the metallic foil.

22. An electronic device, comprising:

- an electronic part comprising at least one first electrode;
- 20 a substrate comprising at least one second electrode;
- at least one bump formed on the at least one first electrode,
- and
- at least one bump formed on the at least one second electrode,

said bumps formed from the elastic conductive resin composition of claim 1,

wherein the at least one first electrode and the at least one second electrode are electrically connected to each other by physical contact a) of the at least one bump on the at least one first electrode with the at least one second electrode, and b) of the at least one bump on the at least one second electrode with the at least one first electrode.

10 23. An electronic device, comprising:

an electronic part comprising at least one first electrode;

a substrate comprising at least one second electrode;

at least one bump formed on the at least one first electrode and formed from an elastic conductive composition comprising an elastic resin and a tetrapod-shaped zinc oxide filler comprising a surface layer of gold, silver, nickel, or copper,

at least one bump formed on the at least one second electrode and formed from an elastic conductive composition comprising an elastic resin and a tetrapod-shaped zinc oxide filler comprising a surface layer of gold, silver, nickel, or copper,

wherein the at least one first electrode and the at least one second electrode are electrically connected to each other by physical contact of the at least one bump thereon with the other electrode.